Impacts of Climate Change on Washington State: Summary of Plenary Sessions at 2005 conference, "The Future Ain't What it Used to Be: Planning for Climate Disruption"

October 27, 2005

Qwest Field Conference Center

Seattle, Washington

Sponsored by King County

A report by Lia Ossiander and Kevin Rennert

Information on the conference is available at http://dnr.metrokc.gov/dnrp/climate-change/conference-2005.htm and http://www.cses.washington.edu/cig/outreach/workshops.shtml.

Summary of Breakout Group Presentations and Discussion

Climate Change Impacts on Washington State XX [breakout topic]

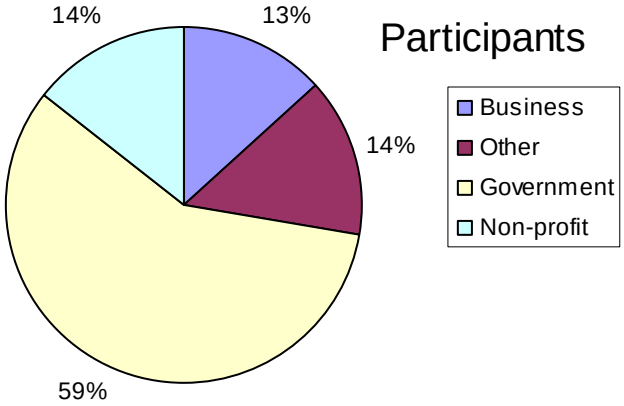
October 27, 2005

Seattle, Washington

On Thursday, October 27, 2005, King County hosted a one day meeting to engage a broad cross-section of Washington State governments, businesses, tribes, farmers, non-profits, and the community-at-large in a dialogue about climate change impacts and potential adaptations in Washington State. The following is a summary of the plenary presentations and discussion. More information on the meeting, including electronic copies of the plenary presentations, is available at http://dnr.metrokc.gov/dnrp/climate-change/.

The plenary session commenced with a welcome by Conference Host Ron Sims, King County Executive, who introduced the current progress of King County in addressing climate change planning and prevention. Keynote speaker Dr. Stephen Schneider illustrated the challenges of defining and solving "dangerous" climate change and offered an ethical framework to evaluate social choices regarding unquantifiable future climate consequences. The projections and impacts of future climate change in the Pacific Northwest region and planning strategies for an altered climate were presented by the University of Washington Climate Impacts Group. Terry Williams of the Tulalip Tribes shared his vision of a cultural arc to preserve Native American identity within the natural world. The large group then broke for sessions of sector impacts and reconvened to hear Governor Christine Todd Whitman highlight the urgency of acting on climate change and recount examples of progress on greenhouse gas reduction across the country. After an additional round of breakout discussions, the large group gathered to hear summaries from each sector impact group and ask questions. The closing plenary speaker was author John Cox, who described a revolution in scientific thinking about the rate at which climate change can and does occur.

Participants



The meeting attracted 600 preregistrants from King County and across the state. A broad cross-section of local governments, state agencies, education, business, tribes, agriculture, noprofit organizations and citizens participated in the conference (please see figure).

Summary of Morning Plenary Session (8 am – 10:30 am)

Presentations

King County Executive Ron Sims Welcome by Conference Host

Executive Ron Sims noted that the conference drew nearly 700 participants, with many turned away when capacity was met, and concluded that the timely topic of preventing and planning for inevitable climate change struck a resounding chord in King County and across Washington. He reminded the audience that Puget Sound is inherently linked to water and therefore today's decisions regarding energy and climate are critical.
Sims described several steps King County is already taking to mitigate future climate change. Some of King County's public transportation fleet has been converted to biodiesel and hybrid buses. He noted that vehicle emissions are the largest source of greenhouse gases in the county, and that King County boasts the largest system of public transportation in the Pacific Northwest. In addition, 125,000 acres of designated forest land are protected from development in the county. Sims urged that these initial steps to reduce and prepare for climatic impact should be strengthened, including introducing more alternative energy-based mass transit. He argued that flooding risks will likely increase in the future, and that planning is urgent. He described an integrated water management strategy, whereby wastewater now released directly into Puget Sound should in the future be recycled for industrial use, thereby allaying future water shortages caused by decreased winter snowpack. He emphasized the value of acting now for the benefit of future generations.

Dr. Stephen Schneider, "Can We Define- Let Alone Solve- "Dangerous" Climate Change?". An electronic copy of this presentation is available for download as a powerpoint presentation and a pdf file on the meeting website.

University of Washington Climate Impacts Group: Climate Change in the Pacific Northwest
The powerpoint presentations given by CIG are available on the meeting website, -
_____.

The presentation of local climate impacts was followed by a short question and answer session:

Question: The presentations this morning have focused on the emission of greenhouse gases by humans as the main cause of the current global warming, and the projections for future warming depend on projections of future emissions which are linked to future population growth. Taking action to reduce population growth, through family size limits and sterilization programs would clearly go a long way towards solving the global warming problem. Why are none of your solutions you've presented this morning taking this approach? Also, a "pay at the pump" 50 cent-a-gallon gas tax hike would justly place more of the future costs of climate change on the source of the problem.

Stephen Schneider: Well, even without getting into the constitutional issues involved in imposing population restrictions, there are other reasons not to take that approach. There was a paper in the 1970's which made the case that the human impact on the planet was a

function of population times affluence times the ability to innovate new technologies. It's much easier to deal with the technology part of that equation than it is to deal with the population part. If you want a large family, fine, just don't put them all in Hummers.

Question: One of the things that wasn't discussed in the presentations was the interface with politics. For example, all of the floodplain maps are drawn based on historical patterns, which may not be valid any more because of climate change. How do you bring reality to the feds about these kinds of issues?

Amy Snover: That's a great question. You're right, we have to start looking at the future as different from the past, and we have to incorporate that fact into our planning.

Question: With all of the data that you use, and all of the increasingly complex computer models that you run to come up with these projections, are you having any trouble with intellectual property rights conflicting with the need for everyone to share their information?

Ed Miles: This is a real concern, and I see the potential for difficulties in the future. We at CIG insist that everything we do is free to the public.

Stephen Schneider: Frankly, we wish that we had people that were trying so hard to get this information that we had this problem. Perhaps things will change if adaptation becomes a competitive question, and the control of knowledge an advantage for success.

Question: Could you please give an outline of what a rational energy policy might be?

Stephen Schneider: First of all, you have to simply be smart, and do the things that make sense environmentally and socio-economically regardless of how much the planet actually warms. For example, increasing efficiency of cars and industry has other benefits besides mitigating global warming, it also offers the health benefits of reduced air pollution. Other obvious things would be making sure you have diamond lanes to encourage carpooling, and making sure you factor in climate change information when you make planning decisions. You also have to make sure you get the prices right to send the proper economic signals. Atmospheric garbage collection is not free, though right now we act like it is. Until we fix that, we're putting a damper on the development of alternatives.

Question: Why does the curve of temperature increase in your projections accelerate towards the end of the time frame?

Philip Mote: It does for some scenarios, though it doesn't for others. For one of them, the B1 scenario in which the environment is a priority, the temperature actually stabilizes by the end of the century. One of the upward curves you're talking about, though, is the A2 scenario, in which population continues to grow rapidly, and developing countries industrialize using mainly fossil fuels.

Stephen Schneider: You'll notice that the pack of curves of the different scenarios stays together for a while before it spreads out. That's because changes in technology take about a generation, and the time scale for the geophysical system to respond is also about a generation, so there's a fairly large lag in the system. This brings up an important point.

When economists use a discount rate to weigh current costs of action versus future costs of inaction, inaction will always be favored. This makes the question of action really an ethical question. And it's a difficult sell to people to take actions for which they may not themselves see the results.

Terry Williams, Tulalip Tribes Putting a human face on climate impacts

Terry Williams is a member of the Tulalip Tribes and addressed the group about local, robust Native American identity and relationship with an abundant, nurturing land.

Terry Williams began by declaring his intent not to talk about science directly, but rather to explore ethics. He reminded the audience of Dr. Schneider's analogy earlier during the morning of looking in the morning mirror and seeing an ethical person. He then altered the analogy to remind his listeners of the identity and immediacy of Native American culture, saying, "if you look in the mirror in the morning, and don't see a Living Indian, know that we are still out there." Williams described the altered state of the Skykomish watershed and the disappearance of abundant salmon runs.

He recounted telling his tribal council that he would address this conference and their questioning him as to what he would speak about. He told them he would portray building a 21st century ark, a cultural ark to transmit culture, identity, and understanding that would otherwise be lost. Williams recounted the peace treaty his people signed in 1855, in which the US promised protection forever. He articulated the right of the tribe to preserve its culture and related their tradition, on this land beside the water, to collect grass before their cedar longhouses and to harvest ducks and geese along the shoreline. He noted this was a sign of wealth, to have time to learn construction, develop art, and pursue trade, a way of life that came from gathering natural goods.

Today, Williams reported, we face predictions of rising temperatures, the ocean warming, and regional population doubling. He questioned how Native Americans will define self when past ways are gone. He pointed out that a trade for peace was made which required tribes to stay on reservations, thus preventing drifting with changes in the natural land, or migrating to gather the harvest. A cultural, 21st century ark is needed, Williams argued, to nourish abundance and natural bounty and prevent loss of identity.

Williams observed that about 700 people were gathered to plan for climate change, and deemed it dramatic progress from 10 years ago, when he would have been driven from such a gathering if he'd spoken about climate change. He urged his listeners to think of the forests providing a cool canopy, and of wetlands, natural reservoirs of water and once home to beavers. He warned that the loss of the 1989 Wetlands Permitting Act could leave people with only dry ground and drive pressure to reintroduce wetlands that have fallen out of the ecosystem. Williams advocated the respect of sharing knowledge and listening in order to communicate scientific knowledge without offending tribal people and what they observe. Otherwise, he cautioned, society risks the potential loss of tribal life in 20-30 years. The Living Indian does not want to lose his or her culture, he concluded, so if you look in the

mirror in the morning, and don't see an Indian, decide if you want the Living Indian to still be out there.

Summary of Lunchtime Plenary Session (12:30 am – 1:15 pm)

Presentations

Gov. Christine Todd Whitman, Keynote Address to Conference

Governor Whitman's presentation touched on many political aspects of the climate change problem, giving evidence of both the reasons for difficulty as well as citing many examples of progress through action at the level of state and federal governments, as well as by corporations.

She began by lauding the efforts of King County, not just for organizing this conference, but for having been forward thinking on environmental issues for so long. She was tremendously impressed that over a decade ago the county had measured the status of the environment, set goals for improvement, and publicized their findings. She extolled the importance of measurement and continual monitoring of the state of the environment, so progress on goals can be evaluated and policies judged on their effectiveness. During Whitman's tenure at the EPA, she oversaw the first national 'report card' on the state of the environment. This report showed that the U.S. had made progress towards solving some environmental problems, but that there was still much work to be done. She observed that this report was also notable because it didn't include a report on climate change, but that this was omitted due to the difficulty in gaining consensus on the contents of such a section. Governor Whitman explained, that rather than publish a section that wasn't up to the high standard of the rest of the report, they chose to omit the section entirely.

Despite the inability of multiple interests to reach consensus on climate change, Whitman recognized that the majority of scientists worldwide has reached consensus on the basics of climate change; that the global average temperature was rising, at least in part due to humans. Even though there are still contrarians, most policy makers are beginning to accept that climate change is a real problem.

Climate change is on the minds of the general public as well, and Whitman highlighted a recent study that showed 70% of those polled felt they had a good understanding of global warming, the same percentage felt that global warming was either already underway or would happen in the future, and that 65% felt scientific projections of the changes to be expected were either accurate or underestimated. She also viewed the worldwide success of the global warming disaster movie 'The Day After Tomorrow', as well as the continued success of Michael Crichton's novel 'State of Fear', which dismisses global warming as a hoax put on by environmentalists, as further evidence that climate change is the public radar. The discrepancies between the two viewpoints proffered by these two examples, though, show that there's still confusion in the minds of the public about the issue. Despite apparent public concern, Whitman drew attention to polls that show Americans don't rank the environment as a top priority, or even in a list of their top 10 priorities.

Governor Whitman argued that while scientists have a key role in educating the public in these areas, dramatic events in nature may be the only things that truly raise the awareness level. She submitted the downward trends in Arctic sea ice and the tremendous damages and loss of life from hurricanes Katrina and Wilma as events that could facilitate the public recognizing the dangers of climate change.

Though federal action and regulation has been slow on climate change, Whitman noted that the states aren't waiting for federal leadership on the issue. Her state of New Jersey, for example, is vulnerable to climate change through the potential for intense storms to increase erosion of beaches and cause property damage. In 1999, the state responded by passing a greenhouse gas action plan to reduce its greenhouse gas emissions to 3.5% below 1990 levels by 2005. 18 states have passed laws requiring a certain percentage of electrical power to be generated from renewable sources. 9 states in the northeast have established carbon registries to set up a carbon trading system, and California just passed a resolution to have reduced their emissions to 80% below 1990 levels by 2050.

Gov. Whitman found federal government's actions to mitigate climate change, while less ambitious than that of the states, still to be important. Each year billions of dollars in federal aid support climate research, and $1.7 billion over the next 5 years will support the development of hydrogen fuel technologies. In addition, the voluntary reductions of greenhouse gases by corporations solicited by the government have enjoyed a degree of success. The clearest signal that the winds of change are blowing in the federal government, however, was the sense of the Senate resolution approved by the US Senate (statement of sentiment passed by the U.S. Senate) that climate change is a real problem, and that action needs to be taken. The political will is not mobilized to take action just yet, as evidenced by the defeat of the Climate Stewardship Act in the Senate, but there are positive signs.

In addition to the actions taken by state and federal governments, Governor Whitman highlighted the steps taken by many corporations to monitor and reduce their own emissions. More than 70 U.S. companies have signed up for the Greenhouse Gas Registry, making them eligible for support in doing an emissions inventory of their own operations. Gov. Whitman reasoned that these actions reflect that good stewardship of the environment is good business, and noted that these companies are receiving pressure from their shareholders, as well as consumers, to become more environmentally conscious.

In closing, Governor Whitman requested that, if participants in the conference took anything away from this workshop, it should be that their actions make a difference, both in terms of the physical environment, and perhaps of equal importance, to change the political climate in Washington.

Governor Whitman's talk was followed by a short question and answer session:

Question: When you say that the private companies that signed up for the Greenhouse Gas Registry are going to be setting emission targets with some help from the government, are they actually receiving federal funding?

Governor Whitman: No, there is no funding from the public sector. These companies believe that there will be regulation at some point, and are trying to get ahead of the game. They wish that there was a true cap and trade emissions system in place so that they could take advantage of it, but as of now, there's not. In addition, they're getting pressure from consumers and their shareholders to take this kind of action and at least benchmark current emission levels.

Question: You mentioned three different approaches towards reducing emissions: mandatory regulation, market-based, and voluntary. What is the role of regulation in making the market-based approach more viable?

Governor Whitman: The Chicago Climate Exchange for trading carbon credits exists now, and would be more vigorous if there was a cap and trade regulatory system in place. In the EU, they have taken the regulatory approach, but many that I've spoken with there see the value in our strategy of giving companies incentives by helping them to profit from their compliance. The reductions in sulfur dioxide taking the cap and trade approach after the Clean Air Act was passed were tremendous. One strategy alone isn't enough. The Energy Star program, for example, has been very successful in promoting efficiency, but it isn't enough. We'll need both incentives and regulations to promote a real difference.

Question: I want to applaud New Jersey for establishing such ambitious goals for greenhouse gas emission reductions. What do we need to do encourage more states to set similar progressive goals?

Gocernor Whitman: There is a lot of action building across the country right now. The coalition of nine northeastern states and the western states union are examples of "laboratories of democracy" changing the status quo. Essentially greater public interest is needed for broader change. Politicians respond to constituents. The challenge with climate change is we face changing our behavior for unseen benefits. Painful choices will not be made without a change in the political climate.

Question: What are the necessary pre-conditions for the U.S. to participate in phase II of the Kyoto negotiations?

Governor Whitman: First, the US came close to signing on to Kyoto, but the support was broken by the mandatory carbon cap. Now we're starting to see evangelical groups standing up and saying that this is an important issue, which is always helpful in Washington these days. U.S.-based international corporations are starting to see problems with having to deal with international regulations if they have no mechanism in place to benchmark their emissions. Even domestically there is starting to be a threat of a patchwork quilt of state regulations, which is bad for businesses. They'd much rather have a national standard. The reinsurance companies realize that climate change is going to be a real problem for them as well, and are starting to lobby for change. We're starting to get a critical nexus of will on this issue. The critical hurdle, however, is that the American public doesn't put the environment on its top 10 list of priorities, it's more like 15th. We need to get the public to prioritize the environment. It won't hurt us to reduce what we're putting in the atmosphere.

Question: Are you encouraged by the adoption by 8 states of lower emission standards for vehicles, with a 30% reduction by 2016? How can we promote renewable fuels, like biodiesel and ethanol?

Governor Whitman: Absolutely, I support anything which reduces emissions. Until national standards are in place, it is up to each of us to act. I can not offer a universal solution to lower greenhouse gas emissions. As long as the steps move of forward towards a cleaner environment, they are not bad. Even after we have national legislation to reduce emissions, there will always be a need for emission reductions by individuals.

Summary of Afternoon Plenary Session (3 pm – 4:30 pm)

Reports from Breakout Groups

Session Chair: Jay Manning, Director, Washington State Department of Ecology

Each breakout session was charged with the task of identifying the top three priorities for their sector during their morning and afternoon breakout sessions. These three priorities were reported back to the entire conference audience during this section of the afternoon plenary session.

Agricultural Sector: Kathy Hashagen, King County Solid Waste Division

Top three priorities:

- Climate change poses challenges to the quantity and quality of farmers' water supplies.
- Climate change will likely increase the threat caused by agricultural pests. New or different pests in the region as well as changes in the lifecycle of current pests could require changes to farming practices.
- A regional agricultural strategy is necessary to address climate impacts as well as the current economic difficulties of farming in the Pacific Northwest. This strategy ought to encourage investment in agricultural operations, bolster communication between researchers and farmers, improve funding for extension activities, address rising production and fuel costs, and take advantage of potential biofuel production opportunities.

Coastal Sector: Burr Stewart, Port of Seattle

Top three priorities:

- Improve and increase public education and outreach efforts to aid in the transfer and translation of technical information to the general public.
- Develop incentive-based strategies to discourage development in threatened coastal areas.
- Adequately fund scientific monitoring and modeling efforts, with an emphasis on systems-based approaches.

Fish and Shellfish Sector: Kathy Fletcher, People for Puget Sound

Top three priorities:

- Fish and shellfish must be thought of in the context of the ecosystem as a whole. A resilient ecosystem is more resistant to damage and impact due to climate change.
- Climate change has not yet been factored into many conservation plans. Current fish and shellfish regulations need to be reviewed in light of future impacts posed by climate change.
- Areas and populations that are healthiest and most resilient to potential climate change impacts need to be prioritized and conservation efforts should be focused there.

Flooding / Stormwater / Wastewater Sector: Allen de Steiguer, Carollo Engineers

Top three priorities:

- Public agencies must play a more significant role in addressing climate change issues both now and in the future. Agencies should incorporate more stringent design standards into public development projects and devote more resources to monitoring and enforcing standards established for private facilities.
- Better information is needed to accurately describe climate change. Though a complex issue, climate change must be quantified so that its impacts can be communicated in a specific, understandable, and tangible way to decision making entities and to the general public.
- New methods of decision making must be adopted in order to address the uncertainties associated with climate change and its potential impacts on municipal water management in the Pacific Northwest.

Forestry Sector: Dave Peterson, USFS

Top three priorities:

- Retain as much forested land as possible. Forested land that currently exists needs to be maintained and new ways to increase forest area need to be sought. This will require enhanced incentives for forest retention. This can be achieved through developing policy and market driven means to make keeping land forested more economically feasible for landowners. By retaining forests, carbon stored in the terrestrial ecosystem is increased, mitigating greenhouse gas emissions.
- Manage forest ecosystems for resilience. As climate change increases the risk of fire and insect disturbance, management will become necessary. Management activities will range from passive to active and will depend on the goals set by individual landowners for a given forest type. For example, old growth forests are considered a biological and cultural legacy where active management is inappropriate.
- Improve links between science and management. The ability to build flexibility into the management and policy strategies for forest ecosystems will depend on utilizing available and future science as the basis for decision making. Monitoring is needed now to provide the basis for understanding how to manage our forest ecosystems in the face of climatic change.

Hydropower Sector: Pat Serie, Enviroissues Principal

Top three priorities:

- Expansion and/or adaptation of hard resources (ie. storage, renewable energy)
- Expansion and/or adaptation of soft resources (ie. conservation, management practices, "Smart Grids")
- Expansion and/or adaptation of institutional resources (ie. political, judicial, regulatory organization)

Municipal Water Supply Sector: Andrew Graham, HDR Engineering, Inc.

Top three priorities:

- More information on groundwater is needed; the diversity of water systems serving the region (e.g. in size and type) should be considered.
- Collaboration between different utilities and also with the public and government officials is needed to garner more resources for increased preparedness.
- More planning to improve flexibility and robustness of water supply systems is necessary, and is most crucial for smaller systems that might not have the tools necessary to predict problems far into the future.

Q&A Summary

Following the summaries of the break out session, there was a short question and answer session with the summary panel, moderated by Jay Manning.

Jay Manning: In many of your summaries, there was a call for improved data management and improved management systems, so that the systems are more resilient. Do we have the authorizing environment in place to do that politically?

Burr Stewart: What I see is fragmentation among who's working on what, and that we need more coordination between researchers. There's a lot of interest in using existing knowledge and data to examine our current laws in the context of climate change. The availability of products like Google Earth has made me realize that our ability to get data and manipulate it is growing faster than our ability to work together as people. As for the political authorizing authority, I think we need to develop system tools and let political climate follow. We need to learn how to make decisions in times of uncertainty, and educate decision makers that there isn't one answer when dealing with impacts of climate change.

Kathy Hashagen*:* There are tens of thousands of individual decision makers in the form of farmers. We're developing tools for them to help them to make individual, micro-decisions based on climate information that directly relate to their economic survival.

Jay Manning: From the Agriculture session I heard that there needed to be some kind of a plan for management. Is there sufficient agreement in the agricultural community to pursue a strategy to set up such a plan?

Kathy Hashagen*:* Farmers have made it clear that they have no room left to deal with any new issue, even climate change, the economic pressures on them right now are simply too great already. My reception by farmers when I talk about climate change is very mixed, but I think that this will change in time. There are some forward thinking leaders out there that are already making biofuels, and linking to what will be a new economy.

Dave Peterson: There's the same issue in forestry. Many are having difficulty staying in business. Regulations for issues besides climate change are already much more of a threat to forester's livelihoods than climate change is. Great change is possible, but resource managers are in general tied up writing Environmental Impact Statements. The current trend is for more forest land to be converted into Wal-Marts. We need incentives in place to keep this from happening.

Jay Manning: Several of you have mentioned holistic management practices, and regulating via a systems-based approach. How do we accomplish this?

Andrew Graham: In our discussion we agreed integrating water systems- drinking water, wastewater, and stormwater- is a our goal. We need to find financial resources to reclaim water and invest in infrastructure to recycle water, both to improve stream water quality and to reduce watershed demand.

Jay Manning: In closing, I'd like to make a few observations. The issue of climate change is a political energy center that is gaining momentum. The school of thought that this problem is just too big to do anything about has been rejected. Unfortunately, there is another energy center garnering even more momentum and power, and that is one surrounding personal property rights. Next year, a ballot proposition on this issue will appear, and if it passes, it will make any management of the types we're talking about and even some current management practices, impossible. We have to pay attention to this issue, and understand where its energy is coming from, or it will undermine all of our efforts to make headway on climate change.

John Cox, Closing Speaker and author of "Climate Crash"

An annotated copy of John Cox's powerpoint presentation is available on the conference website, http://dnr.metrokc.gov/dnrp/climate-change/conference-2005-results/plenary-session/pdf/presentation-cox.pdf.